# Configuring Auto SmartPorts


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## Restrictions for Auto SmartPorts

- Although Auto SmartPort detects the Cisco switch it does not invoke the event trigger automatically. The event trigger needs to be manually invoked to map the switch to macros.

  The **no macro auto global processing** command disables the Auto Smartport only. To disable the device classifier, use the **no device classifier** command.

- In a scenario where the user is authenticating for clients using the ASP macro and the macro includes commands that may trigger a session teardown or an internal configuration change, we observe that after authentication, the MAC address gets stuck in the drop state. The following are recommended workarounds to avoid this situation:

  - If the macro contains authentication commands, such as **authentication event server dead action authorize vlan** *vlan-id* and **authentication event no-response action authorize vlan** *vlan-id*, remove the commands from the macro and configure them directly on the interface.

  - If the macro contains the **switchport access vlan***vlan-id* command, use the Dynamic VLAN from the AAA server instead of configuring the VLAN via the macro.

## Information about Auto SmartPorts

Auto SmartPort macros dynamically configure ports based on the device type detected on the port. When the switch detects a new device on a port, it applies the appropriate Auto SmartPorts macro. When a link-down event occurs on the port, the switch removes the macro. For example, when you connect a Cisco IP phone to a port, Auto SmartPorts automatically applies the Cisco IP phone macro. The Cisco IP phone macro enables quality of service (QoS), security features, and a dedicated voice VLAN to ensure proper treatment of delay-sensitive voice traffic.

Auto SmartPorts uses event triggers to map devices to macros. The most common event triggers are based on Cisco Discovery Protocol (CDP) messages received from connected devices. The detection of a device (Cisco IP phone, Cisco wireless access point, or Cisco router) invokes an event trigger for that device.

Link Layer Discovery Protocol (LLDP) is used to detect devices that do not support CDP. Other mechanisms used as event triggers include the 802.1X authentication result and MAC-address learned.

System built-in event triggers exist for various devices based mostly on CDP and LLDP messages and some MAC address. These triggers are enabled as long as Auto SmartPort is enabled.

You can configure user-defined trigger groups for profiles and devices. The name of the trigger group is used to associate a user-defined macro.

# Auto SmartPort Macros

The Auto SmartPort macros are groups of CLI commands. Detection of devices on a port triggers the application of the macro for the device. System built-in macros exist for various devices, and, by default, system built-in triggers are mapped to the corresponding built-in macros. You can change the mapping of built-in triggers or macros as needed.

A macro basically applies or removes a set of CLIs on an interface based on the link status. In a macro, the link status is checked. If the link is up, then a set of CLIs is applied; if the link is down, the set is removed (the no format of the CLIs are applied). The part of the macro that applies the set of CLIs is termed macro. The part that removes the CLIs (the no format of the CLIs) are termed antimacro.

When a device is connected to an Auto SmartPort, if it gets classified as a lighting end point, it invokes the event trigger **CISCO_LIGHT_EVENT**, and the macro **CISCO_LIGHT_AUTO_SMARTPORT** is executed.

# Commands run by CISCO_LIGHT_AUTO_SMARTPORT

When the macro is executed, it runs a series of commands on the switch.

The commands that are executed by running the macro **CISCO_LIGHT_AUTO_SMARTPORT** are:

- switchport mode access
- switchport port-security violation restrict
- switchport port-security mac-address sticky
- switchport port-security
- power inline port poe-ha
- storm-control broadcast level 50.00
- storm-control multicast level 50.00
- storm-control unicast level 50.00
- spanning-tree portfast
- spanning-tree bpduguard enable

# Enabling Auto SmartPort

**Note** Auto SmartPorts are disabled by default.

To disable Auto SmartPort macros on a specific port, use the **no macro auto global processing** interface command before enabling Auto SmartPort globally.

To enable Auto SmartPort globally, use the **macro auto global processing** global configuration command.

To enable an Auto SmartPort, perform this task:

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Device> enable` | Enables privileged EXEC mode.<br>Enter your password, if prompted. |
| **Step 2** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 3** | **device classifier**<br>**Example:**<br>`Device(config)# device classifier` | Enables the device classifier.<br>Use **no device classifier** command to disable the device classifier. |
| **Step 4** | **macro auto global processing**<br>**Example:**<br>`Device(config)# macro auto global processing` | Enables Auto SmartPorts on the switch globally.<br>Use **no macro auto global processing** command to disable Auto SmartPort globally. |
| **Step 5** | **end**<br>**Example:**<br>`Device(config)# end` | Returns to privileged EXEC mode. |
| **Step 6** | **show running-config**<br>**Example:**<br>`Device# show running-config` | Verifies your entries. |
| **Step 7** | **copy running-config startup-config**<br>**Example:**<br>`Device# copy running-config startup-config` | (Optional) Saves your entries in the configuration file. |

# How to Configure Auto SmartPorts

The following section provides information about how to configure auto smartports.

**Note** Follow these guidelines when you are configuring Auto SmartPort Macros, performing active standby sync and configuring reload from primary to standby:

- Make sure there is no extra space in the configuration.
- Do not add extra parenthesis and tab in the configuration.
- Ensure that you do not use enter keyword more than required while configuring.

## Configuring Mapping Between Event Triggers and Built-in Macros

To map an event trigger to a built-in macro, perform this task:

### Before you begin

You need to enable Auto SmartPort macros globally. You need to perform this task when a Cisco switch is connected to the Auto SmartPort.

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Device> enable` | Enables privileged EXEC mode.<br>Enter your password, if prompted. |
| **Step 2** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 3** | **macro auto execute** *event trigger* **builtin** *built-in macro name*<br>**Example:**<br>`Device(config)# macro auto execute CISCO_SWITCH_EVENT builtin CISCO_SWITCH_AUTO_SMARTPORT` | Specifies a user-defined event trigger and a macro name. This action configures mapping from an event trigger to a built-in Auto Smartports macro. |
| **Step 4** | **macro auto trigger** *event trigger*<br>**Example:**<br>`Device(config)# macro auto trigger CISCO_SWITCH_EVENT` | Invokes the user-defined event trigger. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 5** | **device** *device_ID*<br>**Example:**<br>`Device(config)# device cisco WS-C3560CX-8PT-S` | Matches the event trigger to the device identifier. |
| **Step 6** | **end**<br>**Example:**<br>`Device(config)# end` | Returns to privileged EXEC mode. |
| **Step 7** | **show shell triggers**<br>**Example:**<br>`Device# show shell triggers` | Displays the event triggers on the switch. |
| **Step 8** | **show running-config**<br>**Example:**<br>`Device# show running-config` | Verifies your entries. |
| **Step 9** | **copy running-config startup-config**<br>**Example:**<br>`Device# copy running-config startup-config` | (Optional) Saves your entries in the configuration file. |

# Configuration Examples for Auto SmartPorts

The following sections provide configuration examples for Auto SmartPorts.

## Example: Enabling Auto SmartPorts

The following example shows how you can enable an Auto SmartPort.

```
Device> enable
Device# configure terminal
Device(config)# device classifier
Device(config)# macro auto global processing
Device(config)# end
```

## Example: Configuring Mapping Between Event Triggers and Built-In Macros

The following example shows how you can configure mapping between event triggers and built-in macros:

```
Device> enable
Device# configure terminal
Device(config)# macro auto execute CISCO_SWITCH_EVENT builtin CISCO_SWITCH_AUTO_SMARTPORT
Device(config)# macro auto trigger CISCO_SWITCH_EVENT
Device(config)# device cisco WS-C3560CX-8PT-S
Device(config)# end
```

# Feature History for Auto SmartPorts

This table provides release and related information for features explained in this module.

These features are available on all releases subsequent to the one they were introduced in, unless noted otherwise.

***Table 1: Feature History for Auto SmartPorts***

| Release | Feature | Feature Information |
|---|---|---|
| Cisco IOS XE Fuji 16.9.2 | Auto SmartPorts | Auto SmartPort macros dynamically configure ports based on the device type detected on the port. When the switch detects a new device on a port, it applies the appropriate Auto SmartPorts macro. |
| Cisco IOS XE Cupertino 17.9.1 | Auto SmartPorts | This feature was implemented on C9200CX-12P-2X2G, C9200CX-8P-2X2G, and C9200CX-12T-2X2G models of the Cisco Catalyst 9200CX Series Switches, which were introduced in this release. |

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